

REMARKS/ARGUMENTS

1. Claims

Claims 2 and 4-8 are pending in the application. Favorable reconsideration of the application is respectfully requested in view of the foregoing amendments and the following remarks.

2. Claim Rejections – 35 U.S.C. § 103 (a)

In the prior Office Action, Claims 2 and 4-8 were conditionally allowed. In response, the Applicant amended claims 2 and 4-8 to put them in form for allowance. In this latest Office Action, the Examiner has withdrawn the previous conditional allowance and rejected claims 2 and 4-8 under 35 U.S.C. 103(a) as being unpatentable over Kuehnel (2004/0202148) and Li et al. (20040213205). Applicant appreciates the Examiner's industriousness in searching for art on which to reject the present application. However, Applicant respectfully traverses the present rejection. The combination of the two new references (Kuehnel and Li) do not disclose, and are not suggestive of, the present invention.

Claim 2 (which was formerly conditionally allowed), provides:

2. A method for transporting Time Division Multiplex (TDM) time slots of a circuit switched connection from a first circuit switched node to a second circuit switched node through a packet switched network including a number of packet switched nodes, the circuit and packet switched nodes based on a Multiprotocol Label Switch (MPLS), comprising the steps of:

in the first circuit switched node, encapsulating the time slots in a data frame adjusted to be transferred in the packet switched network;

stacking the data frame with (i) at least one inner MPLS label uniquely addressing a PCM system within the second circuit switched node and (ii) at least one outer MPLS label identifying a fixed path of consecutive packet switched nodes within the packet switched network, said outer label includes addresses of all the packet switched nodes included in the fixed path in addition to an address of the second circuit switched node; and

in the second circuit switched node, removing the outer MPLS label and transferring the time slots to the PCM system addressed by the inner label.

The Examiner asserts:

Kuehnel teaches stacking the data frame with at least one inner MPLS label uniquely addressing a PCM system within the second circuit switched node (Fig. 2, data is from circuit network go through packet network than back to the destination circuit network (second circuit switched node), (fig. 4B, #S15 is nonpacket network which is the second circuit switch node). Fig. 1, the first packet #5 is inner label specify the address of destination, see [0011 and 0045]) and at least one outer MPLS label identifying a fixed path of consecutive packet switched nodes within the packet switched network ([0008]: outer label is added to specify the fixed path, fig. 2, between #11, #17 is packet network), said outer label includes addresses of all the packet switched nodes included in the fixed path in addition to an address of the second circuit switched node ([0008]: "the label identifies the path throughout the network", which means all nodes in the path is identified. And [0045]). And in the second circuit switched node, removing the outer MPLS label (fig. 4B, #511, outer label is removed) and transferring the time slots to the PCM system addressed by the inner label (fig. 4B, #S15a, packet is send to circuit switching network).

However, one skilled in the art would not look to Kuehnel to equate parts thereof to the present invention as Kuehnel is not at all applicable to the present invention. Kuehnel teaches another means of transporting streaming data over MPLS. In that invention, incoming data is multiplexed to generate a single data stream. A composite data stream is then generated by selectively combining certain packets of the single data stream with an IP header or generating new packets with a full IP header at a predetermined timing interval, and then transmitting it to a first MPLS converter that assigns a MPLS label to data packets in the composite data stream using information from the IP header. The composite data stream is then transported and routed to a second MPLS converter, via a MPLS network, that strips the MPLS labels from the data packets. A discriminator separates the stripped, combined data stream into non-IP header data output via a demultiplexer to generate multiple outgoing data streams, and IP header data output to a traffic monitor that controls said routing mechanism.

In contrast, the present invention encapsulates the time slots in a data frame adjusted to be transferred in the packet switched network (Kuehnel is silent regarding time slots and the incorporation of elements of Li is merely picking and choosing elements in hindsight):

...stacking the data frame with (i) at least one inner MPLS label uniquely addressing a PCM system within the second circuit switched node and (ii) at least one outer MPLS label identifying a fixed path of consecutive packet switched nodes within the packet switched network, said outer label includes addresses of all the packet switched nodes included in the fixed path in addition to an address of the second circuit switched node; and in the second circuit switched node, removing the outer MPLS label and transferring the time slots to the PCM system addressed by the inner label.

Note that the present invention uses an inner MPLS label to address a unique PCM system and an outer MPLS label to identify the fixed path. The Examiner equates this structure to Kuehnel's multiplexed packet data stream (composite data stream) that is given a single MPLS label, not an inner and then outer label. The Examiner refers to Fig. 4B element S15. It is described as follows:

In further steps S15a, S15b, respectively, the IP header 5 is sent to the traffic monitor 37 as a feedback information for setting the predetermined interval of the routing mechanism 25 that generates the routing information, and the non-IP traffic is sent to the de-multiplexer 39, which generates streams of output data 41 in the native format.

There is nothing in element S15B that is remotely similar to the present invention. The Examiner further refers to paragraphs [0011] and [0045] wherein a first packet reference numeral 5 is equated with the inner MPLS label of the present invention and paragraph [0008] as being equivalent to the outer MPLS label of the present invention. However, the paragraphs/elements to which the Examiner refers are not similar to the elements of the present invention to which they are equated:

Inner MPLS Label:

Kuenhel:

[0011] If packetized streaming data is transported over an MPLS network in a traditional way, a certain amount of streaming data is buffered, packetized and encapsulated as an IP-packet. Upon entering the MPLS network, a label that references the path through the MPLS network corresponds to the IP-address information and is added. The mapping between destination or a group of destinations and the label can be done statically or dynamically using a control protocol like the prior art Label Distribution Protocol (LDP). A destination or a group of destinations are identified by their respective IP-addresses.

This refers to an IP packet that is given an MPLS label when entering the MPLS network. No distinction is made of it being an inner label or outer label.

Kuenhel:

[0045] Then, in a next step S5, the IP packets 5 are selectively inserted by multiplexing with the single data stream at the second multiplexer 27. In a further step S7, the above-described composite stream output from the second multiplexer 27 is passed to the first MPLS converter 29, and a label 7 is assigned to each incoming packet 1, 9. The incoming packets having a label 7 and an IP header 5 are full IP packets, and the intervening incoming packets not having IP headers are stream data packets 9. At this point, the data structure illustrated in FIG. 1 has been generated. A label 7 is attached to all data (including IP and non-IP). The IP routing packet 5 has a header that acts as a "dummy" header to essentially set up the label switched path throughout the MPLS network for the combined data stream. As noted above, the attachment of the label 7 enables the MPLS network to transport the non-IP data as if it were IP data on a previously established label switched path.

Again, this refers to an IP packet that is given an MPLS label when entering the MPLS network. No distinction is made of it being an inner label or outer label.

Outer MPLS Label:

Kuenhel:

[0008] As a consequence, AIM is widely deployed in today's networks that support voice and data transport alike. However, the connection control mechanisms to setup and release connections were derived from the telephony system, and have a disadvantage in that they do not scale for the kind of data traffic generated by the Internet. New connection control technologies like the prior art MPLS (Multiprotocol Label Switching) were introduced to facilitate transport of Internet packet data over an ATM network. MPLS combines the Internet protocol (IP) with a connection-oriented transport bearer (e.g., ATM). Internet protocol data units (IP-PDUs) travel along predetermined paths, which are statically set up between an ingress and egress point of the MPLS network. A label is assigned to the packet based on address information contained in the packet header. The label identifies the path throughout the network. Such a label-switched path (LSP) provides the conduit for all IPPDUs regardless of the logical connection traversing the network between a given pair of nodes (i.e., ingress node and egress node). A special treatment in terms of Quality of Service (QoS) can be applied to LSPs.

Further again, this refers to an IP packet that is given an MPLS label when entering the MPLS network. No distinction is made of it being an inner label or outer label.

The Examiner then states that Kuehnel fails to teach TDM as transmission protocol, but that Li teaches using TDM to divide data into slots ([0029]) and transferring these slots into a PCM system (Fig. 3, [0007]). Thus, the Examiner states, it would have been obvious for one of ordinary skill in the art to implement Li into Kuehnel, since both arts are in the same field of endeavor and Kuehnel teaches an MPLS method to tunnel the data with a fixed path (which, as noted above, does not disclose our invention), and Li suggests a TDM transmission protocol into a PCM transmission link.

It appears that the present invention has merely been used as a blueprint to pick and choose similarly sounding elements, using impermissible hindsight, to obtain the present invention. However, the elements selected from the cited art cannot be equated to those of the present invention and hence, one skilled in the art would not use them as suggestive of the present invention.

CONCLUSION

In view of the foregoing remarks, the Applicant believes all of the claims currently pending in the Application to be in a condition for allowance. The Applicant, therefore, respectfully requests that the Examiner withdraw all rejections and issue a Notice of Allowance for all pending claims.

The Applicant requests a telephonic interview if the Examiner has any questions or requires any additional information that would further or expedite the prosecution of the Application.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Michael Cameron', with a long horizontal flourish extending to the right.

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